

# Evolution of the FRDC — to 2009

A “corporate memory”  
of the activities of the Fisheries Research and Development Corporation  
since its establishment in 1991, for reference  
by directors and other interested people.

*27 November 2009 edition*

The FRDC's mission  
is to increase economic and social benefits  
for the fishing industry and the people of Australia,  
through planned investment in research and development,  
in an ecologically sustainable framework.



# Evolution of the FRDC — to 2009

---

*The structure of this document is chronological. However, to avoid repetitive listing of themes that have evolved in successive years, the description of the inaugural activity is followed by a paragraph summarising subsequent developments. Such paragraphs are enclosed by square brackets and are coloured indigo.*

---

## Contents

Before FRDC .....	1
1991 to 1993: Formative years .....	2
1994–95: Building researcher capacity .....	5
1995–96: A wider scope .....	6
1996–97: Continual improvement starts to pay off.....	8
1997–98: Major gains in bycatch reduction .....	8
1998–99: New accountability measures .....	10
1999–2000: Measurement of ESD performance .....	11
2000–01: Industry response to ESD.....	13
2001–02: Major initiative for industry development.....	14
2002–03: Increased focus on R&D outcomes .....	16
2003–04: Full financial support from industry.....	18
2004–05: Hand-over at the helm .....	20
2005–06: Chefs and consumers engaged.....	22
2006–07: Cooperative Research Centre established.....	23
2007–08: People development ramped up.....	24
2008–09: World breakthrough in innovation.....	26

## Before FRDC

Australian Fisheries Services, an element within the federal Department of Primary Industries and Energy (DPIE), managed the Fishing Industry Research Trust Account. Similar trust accounts were managed within the department for other industries.<sup>1</sup>

In 1984–85, following a study of rural research, the *Rural Innovation and Research Act* was enacted.

As a result, 18 rural industry research and development councils were established, including the Fishing Industry Research and Development Council (FIRDC). These councils were intended to provide greater transparency with respect to how rural R&D was funded and at the same time give the respective industries greater say over how such funds were invested. Mr Bernard Bowen was appointed as the first chair of FIRDC. He was assisted by an executive officer, Mr Michael Walker. Both were based in Perth.

Notwithstanding the intention for these councils, in the case of FIRDC — like the trust account that preceded it — the fisheries elements within state governments wanted to have control of the research funds, particularly over the contributions that the states made to the funds. Industry also wanted to minimise its contributions.

Alan Newton, a senior officer within DPIE, played a leading role in setting up the councils. Subsequently, in 1989, Alan produced the *Research Innovation and Competitiveness Statement*, which initiated an evolution in the way in which rural research was funded. It was substantiated in the enactment of the 1989 *Primary Industries and Energy Research and Development Act* (PIERD Act), tabled by the Minister for Primary Industries and Energy, John Kerin.

As a result, most councils soon afterwards evolved into new corporations under the PIERD Act. Fisheries, however, did not.

The move towards formation of the FRDC was flagged in the Commonwealth Government Policy Statement of December 1989, *New Directions for Commonwealth Fisheries Management in the 1990s*. The statement established the framework for the FRDC and the Fisheries Resources Research Fund, and stipulated that the Commonwealth's funding of "research which is directly management related and specific to a fishery be funded by those entitled to operate in that fishery, in proportion to the benefits received".

In late 1989, Alan Newton formed a committee within Australian Fisheries Services to develop new directions for Commonwealth fisheries management. The main item was the establishment of the Australian Fisheries Management Authority. However, it did examine the case for fisheries to establish an R&D corporation. In implementing the recommendations, Alan and his committee liaised with the Australian Fishing Industry Council<sup>2</sup>, state industry councils and state governments.

Notwithstanding qualified support for setting up the FRDC, the slow pace at which this happened reflected the states not wanting to lose control of the R&D agenda, which was mostly fisheries management-related, and industry not wanting to increase its contribution to fisheries management research. Hence, when the FRDC came to be established under

---

1 The FRDC has copies of these reports, dating back to 1971, on its electronic database.

2 The executive officer was Brian Jeffriess.

the PIERD Act and related regulations<sup>3</sup>, the regulations specified how industry contributions were to be made to the FRDC but excluded provision for the compulsory R&D levy that was applied to other R&D corporations.

Another major difference concerned the contribution that the Australian Government made to the revenue base of the FRDC. For most<sup>4</sup> other R&D corporations, the Australian Government matched industry contributions up to 0.5% of the industry's average gross value of production over three years (AGVP). However, for the FRDC the Australian Government provided unmatched funds equivalent to 0.5% of the AGVP in recognition of the federal and state governments' stewardship of the publicly owned natural resources on which the seafood industry depends. In addition, the Australian Government matched industry contributions, albeit up to a lesser amount — 0.25% of the industry's AGVP — in recognition of industry benefits deriving from the seafood industry's use of the natural resource.

For other industries, DPIE also provided infrastructural support for marketing and export, but no such support was afforded the seafood industry.

### 1991 to 1993: Formative years

The FRDC's activities pursue the objects specified in section 3 of the PIERD Act:

“The objects of this Act are to make provision for the funding and administration of research and development relating to primary industries with a view to:

- (a) increasing the economic, environmental and social benefits to members of primary industries and to the community in general by improving the production, processing, storage, transport or marketing of the products of primary industries; and
- (b) achieving the sustainable use and sustainable management of natural resources; and
- (c) making more effective use of the resources and skills of the community in general and the scientific community in particular; and
- (d) improving accountability for expenditure upon research and development activities in relation to primary industries.”

On 2 July 1991 the Minister for Primary Industries and Energy, the Hon. Simon Crean, established the FRDC under the provisions of the PIERD Act. Later in the year he appointed Mr Henry Bosch to head a selection committee to select a chairman and board for the FRDC. The committee commissioned TASA International, an executive search company, to assist with this process. As a result, Bill Widerberg was appointed on 16 March 1992 as chairman of the board. Other directors appointed at the same time were Dale Bryan, Dr Brian Hickman, Dr Burke Hill, George Kailis, Dr Robert Kearney and Ted Loveday, with Bruce O'Meagher appointed as Government Director.

---

3 The Fisheries Research and Development Corporation Regulations 29 April 1991. They were amended on 31 January 1992, changing the definition of the fishing industry and adding the AFMA industry sector contribution formula.

4 The two other exceptions were the Land & Water and the Rural Industries RDCs.

The FRDC established an office in the Kurrajong Hotel, Canberra, staffed by seven people on secondment from DPIE.

Early on, the chairman and the manager of the secretariat met with state government and industry representatives to explain the role of the FRDC and to seek agreement on operational arrangements. A common stumbling block was the expectation (unlike with FIRTA) that industry funds raised by jurisdictions be unconditionally forwarded to the FRDC and subsequently accessed through a competitive R&D funding round.

Such related discussions were appeased by two measures. First, in May 1992 Minister Crean issued a direction under section 143(1) of the PIERD Act that the FRDC was to ensure that spending of industry contributions was to be of direct relevance, within a five-year period, to the fishery, region or state/territory in which funds were collected, based on advice from management agencies and industry sectors.<sup>5</sup> Second, the FRDC agreed to establish a trust fund within each state and Commonwealth (CSIRO-administered) jurisdiction and would pay into that trust fund the first year's Australian Government contribution of \$6.5 million in proportion to the AGVP of each jurisdiction. The FRDC guaranteed that it would support such funds being invested in R&D without competitive processes. In doing so the FRDC achieved expenditure of the Australian Government contributions in the inaugural year, 1991, in which there were no R&D project applications to fund.

Other significant inaugural activities were as follows:

- The FRDC adopted 51 current R&D projects from FIRDC and invested in 42 new projects.
- One such project was the commissioning of a national seafood consumption study aimed at providing a basis for the FRDC's investment in marketing, which found that Australians consumed 13.5 kilograms of seafood per year. The FRDC subsequently funded three smaller, city-based studies in 1998 (Sydney), 1999 (Perth) and 2004 (Melbourne) to update the original findings. These studies found that Australians consumed 15 kilograms of seafood per year.
- Another project, no. 1991/056 — funded by the FRDC in partnership with the Australian Tuna Boat Owners Association (later called the Australian Southern Bluefin Tuna Industry Association), SA R&D Institute and the Overseas Cooperative Foundation of Japan — was a trial of catching wild Southern Bluefin Tuna and growing them to market size. An ex-post analysis of this project revealed a benefit:cost ratio of 41:1.
- Tenders were requested through Department of Finance for a project management system — a process subsequently disbanded in favour of developing a system in-house based on Microsoft® Excel® software. The system subsequently migrated to Microsoft® Access® then .NET/SQL, which remains the basis for the current system.

[Other agencies<sup>6</sup> purchased the project management systems from the FRDC and used them with varying degrees of permanence.]

---

<sup>5</sup> This is a summary of the original ministerial direction. The full text of the amended direction of 1995, still current, is on page 6.

<sup>6</sup> Current known users are AFMA, Australian Pork Limited, Seafood CRC and the Queensland natural resources management group Condamine Alliance. Other purchasers were NZ MAFF, TAFI, the CRC for Reef, and the Forest and Woods Products RDC.

- The FRDC collaborated with other RDCs in setting up the Australian Rural Research In Progress database and the Australian Bibliography of Agriculture.

[The initiatives subsequently developed into Australian Agriculture and Natural Resources On-line (AANRO — [www.anro.net](http://www.anro.net)), an integrated knowledge access tool for agriculture and natural resources management. The FRDC has also continually collaborated with other RDCs on a wide range of functions, including benefit-cost analyses (see page 27), communications, common project agreements, comparable approaches to risk management, and cost efficiencies.]

- Permanent accommodation was obtained on the ground floor of Deakin House, 50 Geils Court, Deakin West. (In 1996, the Corporation moved to the ground floor of 25 Geils Court, where it remains; subsequently the building was named Fisheries Research House.)
- Peter Dundas-Smith was appointed as the inaugural Executive Director, and five other staff were recruited to replace the seven seconded from DPIE.
- The Minister declared the National Fishing Industry Council — later called the Australian Seafood Industry Council (ASIC)<sup>7</sup> — a representative organisation to which the Corporation was required to report in accordance with the PIERD Act.
- The first 5-year R&D plan was prepared. With a sole focus on the commercial sector, it identified four areas for its R&D investment, namely natural fish resources, aquaculture, harvesting and marketing.
- ABARE was commissioned to develop a priority-setting process. As a consequence, the FRDC, in consultation with state and Commonwealth jurisdictions established Fisheries Research Advisory Bodies (FRABs) or made existing bodies relevant to the Corporation.<sup>8</sup> Their role was to ensure that R&D is directed to the needs of industry and other end-users.
- The Corporation developed its corporate image and published *R&D News*, quickly achieving record circulation figures for a fishing industry periodical.
- The FRDC entered data into its project management system for 510 completed projects, worth \$54 million, that had been funded by its predecessors since 1971. The majority of the final reports from 1971 to 1991 were also obtained and placed in the final report repository.
- In its second year, the FRDC commissioned the National Fishing Industry Marketing Strategy, later called the Fishing Industry National Study, aimed at identifying sustainable development and profitability challenges for the industry. It involved an unprecedented degree of consultation with industry and others, both in Australia and New Zealand.

[The study's report identified a number of strategic planks that were subsequently implemented through Seafood Services Australia Ltd and other FRDC investments. Planks that have not been implemented are a well-funded peak body and a seafood promotion body.]

- A National Seafood Centre was also established to improve processing, value-adding and marketing of seafood. Innovation achieved by the Centre included packaging technology for export of live kuruma prawns, a machine to remove skin from small fish, and packaged UHT soup from processing waste. Later, the Australian Seafood Extension and Advisory Service was collocated to help the commercial sector to take

---

7 Before NFIC the organisation's title was the Australian Fishing Industry Council.

8 In 1995, Minister Beddall consequently amended the ministerial direction of 1992 to recognise the role played by FRABs in prioritising fisheries R&D.

up leading-edge post-harvest technology. Both initiatives were in partnership with the Department of Primary Industry, Queensland, and they were accommodated in the department's Centre for Food Technology.

[These initiatives later formed the basis for Seafood Services Australia, which commenced in unincorporated form in 1999 and as a not-for-profit industry development company in 2001.]

- The Corporation established managed subprograms so that when the scope of a particular R&D objective extends beyond that which could be achieved through a single project undertaken by a single researcher, strategic directions are developed and maintained, R&D is not duplicated, scientific methods are standardised and results are extended. There were three original subprograms: Replacement of Fishmeal in Aquaculture Feeds, Abalone Aquaculture, and Effects of Trawling.<sup>9</sup>
- The Cooperative Research Centre for Aquaculture was established. The FRDC did not become a participant in the CRC but rather co-invested in related projects under an informal arrangement.

[In 2001, the FRDC became a formal participant in the CRC for the Sustainable Aquaculture of Finfish. In 2007 it became a participant in the Australian Seafood CRC.]

- The first FRDC-sponsored fishing industry participant in the Australian Rural Leadership Program, Peter Petersen, undertook the program. The Corporation subsequently funded either one or two participants per year.

The seafood industry's GVP in 1991–92 was \$1.10 billion and in 1992–93 \$1.18 billion.

### 1994–95: Building researcher capacity

From the Corporation's initial experience, it became evident that there was a need to improve the experimental design of fisheries research. In partnership with the University of Sydney, the FRDC established and funded<sup>10</sup> the Quantitative Fisheries Training Unit under Professor Tony Underwood to train fisheries scientists in modelling and analysis related to the population dynamics of fisheries. The FRDC also subsidised the salary of a population dynamicist in each state and Commonwealth (CSIRO-administered) jurisdiction to increase the expertise urgently needed for fisheries management. After three years of FRDC support these experts<sup>11</sup> were paid by their agencies. They have made significant contributions to fisheries science.

Other significant activities were as follows:

- New Board appointments were Dr Russell Reichelt as Chairman, new directors Diana Day, Peter Shelley and Richard A. Stevens, and re-appointed directors Burke Hill, George Kailis and Ted Loveday. Dr Alison Turner was appointed Government Director.<sup>12</sup>
- The FRDC instigated scholarships with the Australian Maritime College, Launceston, to increase seafood industry members' skills in Management Advisory Committees. (The Corporation subsequently funded scholarships for a further eight years.)

<sup>9</sup> Respectively under the leadership of Dr Geoff Allan, Dr Patrick Hone and Dr Ian Poiner.

<sup>10</sup> Until 1997, then phase 2 from 1997 to 2001.

<sup>11</sup> They included Dr Cathy Dichmont, Dr Rick McGarvey, Dr Malcolm Haddon and Dr James Scandol.

<sup>12</sup> Succeeded in 1997 by Mary Harwood.

- The first comprehensive atlas of Australia's commercial fish and fisheries, *Australian Fisheries Resources*, funded with the Bureau of Resource Science, was launched.
- The *Australian Seafood Catering Manual* — a tool of trade for seafood suppliers, researchers, trainers, consultants and promoters published in conjunction with DPI Queensland — wins a national award for marketing excellence. In *The Australian Financial Review*, food writer Stephen Downes judged that it is “the best publication of any sort I've seen on Australian food.”

[In 2000 the manual was re-designed and published as the *Australian Seafood Users Manual*, which continues to be sold through outlets such as the Seafood Services Australia bookshop.]

- The Industry Commission Report No 44 of 15 May 1994, *Research and Development*, concluded that research and development corporations “have made significant changes in improving the interactions between the R&D process and industry, and in making R&D more responsive to industry needs”.
- The FRDC's transition to an ecosystem focus was reflected in funding of a significant project, “A review and synthesis of Australian fisheries habitat research” through the Australian Institute of Marine Science.<sup>13</sup>

The seafood industry's GVP was \$1.38 billion.

#### ***Ministerial direction of 11 May 1995***

*by the Minister for Resources, The Hon. David Beddall, MP*

Pursuant to my powers under sub-section 143(1) of the *Primary Industries and Energy Research and Development Act 1989*, and replacing the Ministerial direction given to FRDC on 21 May 1992, I hereby direct that:

- (a) FRDC is to ensure that industry funds raised from a particular fishery, industry sector or State/Territory are spent within a five-year period starting from the year of receipt on research and development projects that are of direct relevance to:
  - (i) that fishery; or
  - (ii) industry sector; or
  - (iii) the State/Territory in which the funds were collected;
- (b) in determining the projects on which funds are to be spent under (a), FRDC is to have regard to the advice of the relevant management agency and industry sectors acting in collaboration through the relevant FRAB; and
- (c) FRDC is to recognise the Australian Fisheries Management Authority, operating in consultation with its Management Advisory Committees, as the FRAB relevant to Commonwealth-managed fisheries, including Joint Authority fisheries managed under Commonwealth law.

### **1995–96: A wider scope**

*Investing for Tomorrow's Catch: the FRDC's Research and Development Plan, 1996 to 2001* (its second plan) specifying the Corporation's strategic R&D priorities for the next five

---

<sup>13</sup> Led by Mike Cappo.

years was approved. The Minister for Resources and Energy also declared the Australian Recreational and Sport Fishing Confederation (Recfish Australia) as the second representative organisation of the FRDC. It recognised customary fishing by indigenous people as the third principal sector of the fishing industry.

### *The industry*

The three principal sectors of the fishing industry are recreational, commercial and indigenous.

The commercial sector is also referred to as the “seafood industry”. It comprises the wild-catch sector (which for practical reasons includes pearling) and the aquaculture sector.

A formal definition of the fishing industry is included in the Fisheries Research and Development Corporation Regulations, Amendment 1992:

Includes any industry or activity carried on in or from Australia concerned with: taking, culturing, processing, preserving, storing, transporting, marketing, or selling fish or fish products.

The R&D plan described the FRDC’s expanded role under the Prawn Export Promotion Act, which for the first time prescribed a marketing levy for sea-caught prawns similar to those of other primary industries.

Other significant activities were as follows:

- The R&D plan re-structured the FRDC’s programs into Resources Sustainability, Ecosystems Protection and Industry Development to reflect Government and industry priorities, and specified indicators against which the FRDC could measure its performance.
- A “whole of chain” emphasis in quality management and product quality was initiated through SeaQual, a joint initiative of the Australian Seafood Industry Council, DPIE and the FRDC managed by Jayne Gallagher. Early outputs of this initiative were *The seafood industry’s strategic plan for achieving seafood excellence* and food safety guidelines for seafood processing, described by the Australia New Zealand Food Authority as “a model for others”.

[The SeaQual project was incorporated into Seafood Services Australia in 1999.]

- The first national FRAB workshop was held to implement best practice in R&D planning and evaluation processes.

[FRAB and stakeholder workshops have continued biennially.]

- The book *Marketing Names for Fish and Seafood in Australia* was published with the aim of protecting consumers when purchasing seafood — part of longstanding efforts to use standardised names for more than 4500 marine species either harvested or available in Australia. This was the first of a number of publications and posters resulting from the activities of the National Fish Names Committee, which by then was managed by the FRDC after being managed by DPIE for some 15 years.

[In 1999 the FRDC and CSIRO Marine Research, through the Fish Names Committee, which by then was managed by Seafood Services Australia, published a reference publication, the *Australian Seafood Handbook*. An identification guide to domestic seafood species, it proved to be one of the most popular and widely used publications. Subsequently a guide to imported species was published. In 2007 the National Fish Names Committee, led by Roy Palmer, achieved its goal when standardised Australian fish names were codified as Australian Standard® AS SSA 5300 – 2007: *Australian Fish Names Standard*.]

- The Australian Government restructured industry training advisory bodies and as a consequence disestablished National Fishing Industry Training Council. The FRDC, in conjunction with the South Australian Skills Centre (Bob Miller), then established the Australian Seafood Industry Education Network (ASIEN).

[ASIEN later relocated to Canberra, was staffed by Ross Ord under the management of ASIC, and was renamed Seafood Training Australia (STA). Subsequently the Australian Government, under another restructuring of industry training, recognised STA as an industry training advisory body and provided funding for it. The FRDC's involvement with STA was then reduced. STA was disestablished in 2004 when the Government rationalised industry training and seafood came under the Agri-Food Industry Skills Council, later AgriFood Skills Australia.]

The seafood industry's GVP was \$1.62 billion.

### 1996–97: Continual improvement starts to pay off

Several years of systematic improvement in the FRDC's R&D project management processes began to deliver results. Researchers were becoming more aware of FRDC funding processes and responding positively to them, leading in turn to higher approval rates for projects and a record level of expenditure projected for the next three to four years — within a continuing overhead cost constraint of no more than 8 per cent of total FRDC expenditure, as determined by the Board in framing its first budget. An increasing role was being played by the FRABs in setting priorities and communicating those priorities to the corporation, other funding agencies and researchers.

Other significant activities were as follows:

- The week-long, FRDC-sponsored Second World Fisheries Congress, attended by more than 1200 participants from 62 nations, put a spotlight on the state of science and management across national and international fisheries. It provided an excellent opportunity to hear first-hand the challenges facing fisheries in Australia and overseas.
- The first post-harvest symposium sponsored by the FRDC, *Making the Most of the Catch*, was held in Brisbane.
- A two-day fisheries economic statistics workshop aimed to identify economic statistics essential to sustainable development of the fishing industry. Subsequently a steering committee developed an implementation plan to improve fisheries economic statistics. The committee produced a "barbecue companion" booklet detailing the value of the seafood industry and in 2002 published a comprehensive book, *Valuing fisheries — an economic framework*, edited by Professor Tor Hundloe.
- The Corporation was involved in the Inquiry into Management of Commonwealth Fisheries conducted by the House of Representatives Standing Committee on Primary Industries, Resources and Rural and Regional Affairs.
- The FRDC set up a website to provide information about the Corporation, online access to the R&D Plan, *R&D News* and annual reports, and to enable electronic lodgement of funding applications.

The seafood industry's GVP was \$1.76 billion.

### 1997–98: Major gains in bycatch reduction

The Effects-of-Trawling Subprogram started to have a major impact on trawl fisheries around Australia. Uptake of bycatch reduction devices increased in the Northern Prawn Fishery, Torres Strait, Queensland East Coast Trawl and the prawn trawl fisheries of New

South Wales and South Australia. Adoption of turtle exclusion devices increased, allowing confidence in setting targets for 100% adoption in northern prawn trawling fisheries by 2001. The SA prawn fishery became the first such fishery in Australia — if not the world — to have all operators voluntarily installing bycatch reduction devices. These initiatives were assisted by publication of a guide to bycatch reduction in Australian prawn trawl fisheries and the award of a \$10,000 travel grant to a prawn fisher for leadership in innovation and adoption of bycatch reduction.<sup>14</sup>

To encourage bycatch reduction, the FRDC and OceanWatch Australia Ltd published *Bycatch solutions*, a handbook for fishers in non-trawl fisheries.

Other significant activities were as follows:

- Board appointments were new directors Simon Bennison, Dr Jim Penn, Bill Sawynok and Sandy Wood-Meredith, and re-appointed directors Dr Russell Reichelt (Chairman), Dr Diana Day and Richard A. Stevens. Mary Harwood continued as Government Director.<sup>15</sup>
- The Corporation's quality management program was certified to international standard AS/NZS ISO 9002:1994 (later upgraded to AS/NZS ISO 9001:2000). This was tangible evidence of the FRDC's work ethic of continual improvement, giving further confirmation to stakeholders that their financial contributions to the FRDC were sound, beneficial R&D investments.
- The FRDC was seeking to influence the development, at appropriate levels and sectors within the fishing industry, of R&D plans that incorporate R&D priorities. To assist this process the Corporation started to commission reviews of critical, wide-ranging topics such as seagrass, fisheries habitat and wild-caught abalone to identify R&D priorities. In more recent years R&D plans have been developed for all major industry sectors.
- Complementing these FRDC reviews, the Australia–New Zealand Standing Committee on Fisheries and Aquaculture, in collaboration with the FRDC, commenced an analysis of current and completed fisheries R&D. The aim was to form a picture of Australia's investment in fisheries R&D to help to identify key areas for investment.
- Outputs from some of the inaugural investments began to appear in the form of publications. Titles included *Seafood by season: a state-by-state pictorial guide to the availability of Australian seafood*; *Marketing into Asia: an analysis of Asian markets for seafood products*; *South East Fishery quota species – an identification guide*; *Fish Futures: individual transferable quotas in fisheries*; *The new rural industries: a handbook for investors in new fields of agriculture and aquaculture*; and a *Quality Chooser* developed under the SeaQual project.
- The portfolio of managed subprograms was extended by 1998 to include Southern Bluefin Tuna aquaculture, Atlantic Salmon aquaculture, Rocklobster post-harvest and, controversially, Rocklobster enhancement and aquaculture.<sup>16</sup>
- A major, multi-agency project commenced on the Huon River estuary to investigate the effects of sea cages on the aquatic environment and environmental factors (such as land-based run-off) on aquaculture production.

---

<sup>14</sup> The inaugural winner was John Olsen.

<sup>15</sup> Succeeded in 1999 by Dr Derek Staples.

<sup>16</sup> Subprogram leaders were, respectively, Steven Clarke, Dr Stephen Battaglione, Dr Bruce Phillips and Dr Robert van Barneveld.

- The FRDC also invested significant funds into live finfish export that involved a committee to work with airlines.

The Australian Government reduced its contribution from the 0.5% component of the AGVP for the coming financial year by \$3.6 million. Minister for Resources and Energy, Warwick Parer, at a meeting of the Ministerial Council for Forestry, Fisheries and Aquaculture, encouraged his state counterparts to maximise the Australian Government's matching contributions to the FRDC by ensuring that state industry contributions were at least 0.25% of the AGVP.

The seafood industry's GVP was \$1.78 billion.

## 1998–99: New accountability measures

In January 1999, the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry, Senator Judith Troeth, informed the FRDC of sweeping new accountability arrangements for statutory authorities. Under the new *Commonwealth Authorities and Companies Act 1997* ("CAC Act"), which mirrored the *Corporations Act 1989*, the directors of the Corporation were to include a report of operations in their annual reporting. Soon afterwards, the department, by then known as Agriculture, Fisheries and Forestry – Australia (AFFA)<sup>17</sup>, conducted a Report of Operations workshop to help R&D corporations to identify key requirements and processes in the new accountability arrangements. Other significant changes to accountability arrangements resulted from the Australian Government's moves to an accrual-based "outcomes and outputs" budget framework, to be used first in the 1999–2000 financial year. Accordingly, the FRDC developed a new strategic structure to focus on outcomes and encouraged outcomes-based priority setting through the FRABs and other entities. The diagram overleaf shows the essential elements in relation to the program structure at the time.

Other significant activities were as follows:

- The financial contributions from industry for the year reached 70 per cent of the maximum amount matchable by the Australian Government, following considerable effort by the Corporation and the Minister to increase them.
- *World Aquaculture '99*, hosted by the World Aquaculture Society and the New South Wales Department of Primary Industries, was sponsored by the FRDC.  
[This conference was, in part, a stimulus to the inaugural *Australasian Aquaculture* conference in 2004.]
- Public awareness of the health benefits of eating seafood was increased with the launch of *Seafood the Good Food*. The CSIRO Marine Research study on which it was based showed that most Australian seafood contains 10–100 times higher levels of certain omega-3 fatty acids than other protein sources such as beef, chicken and lamb, and lower levels of cholesterol".

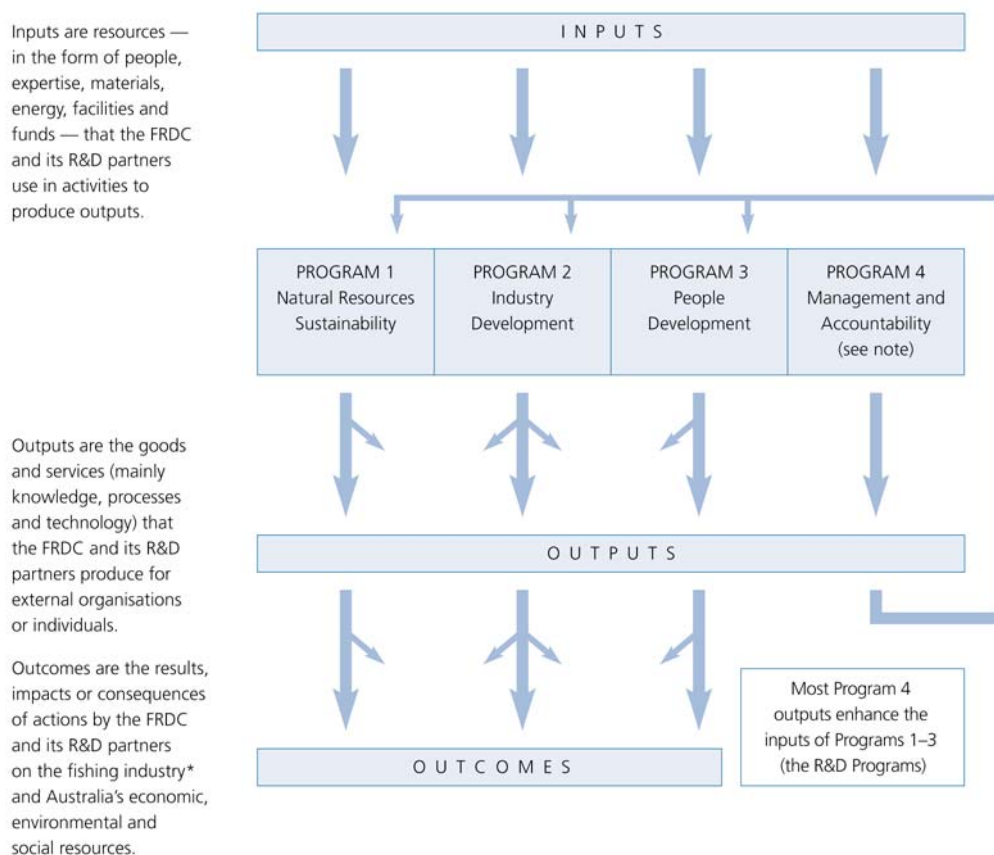
[The high demand for this publication necessitated a second large printing run of an updated edition. In 2001, furthering the theme and culminating a long, rigorous study by Griffith University<sup>18</sup>, a guide for seafood marketers outlining the health benefits of eating seafood — *What's so healthy about seafood?*<sup>19</sup> — was published. A second edition was published in 2004.]

---

17 A subsequent change to "Department of Agriculture, Fisheries and Forestry" (DAFF) was made in 2002–03 and remains the department's title.

18 The principals of the study were Dr Shawn Somerset and Martin Bowerman.

19 Many reviewers contributed to the book, among them Professor Mark Wahlqvist and Dr Naiyana Tikky Wattanapenpaiboon, who subsequently exhaustively examined the material and brought it up to date.



- *Antarctica to the tropics: a snapshot of the Australian fishing industry* was published by the FRDC to provide easily accessible insights into the industry and its challenges.

[Two subsequent editions of the book have been published.]

In this year, the R&D and promotion arms of the meat and livestock industry amalgamated as Meat and Livestock Australia Limited (MLA). This was to be the first instance of a primary industry R&D corporation evolving to become independent of the PIERD Act; others followed. Levy arrangements for both R&D and promotion remained under a deed of agreement between MLA and the Department.

The seafood industry's GVP was \$1.78 billion.

### 1999–2000: Measurement of ESD performance

Following an inaugural national workshop in Geelong to engage all stakeholders in developing a national fisheries ESD framework, the FRDC — in conjunction with the Australia-New Zealand Standing Committee for Fisheries and Aquaculture and with representatives of the fishing industry — established a suite of projects to speed the development of ESD criteria and indicators. They were expected to allow reliable measurement, over time, of the ESD performance of all Australian fisheries, and to be important in helping commercial operators to meet the requirements of the Commonwealth's *Environmental Protection and Biodiversity Conservation Act 1999*.

[Subsequently the FRDC formed an ESD Reporting and Assessment Subprogram.<sup>20</sup> The Subprogram's ESD and risk assessment processes have now been adopted by FAO as their model for fisheries assessment worldwide.]

Other significant activities were as follows:

- In June 2000 the FRDC's third five-year R&D plan was approved by the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry. It contained the most comprehensive available description of the Australian fishing industry and its future challenges, based on the changes in the FRDC's business environment envisaged for the following 20 years. The plan modified the previous program structure with the three R&D programs being Natural Resources Sustainability, Industry Development and Human Capital Development.

[A diagram showing the evolution of the R&D program structure is on page 20.]

- The Western Rocklobster fishery received Marine Stewardship Council certification as a sustainable, well-managed fishery, the first such certification in the world, resulting from a \$5 million FRDC investment over several years.
- The FRDC established the South East Fishery Industry Development Subprogram<sup>21</sup> to change a narrow focus on R&D to underpin stock assessment to one that reflects whole-of-chain processes in this fishery, which at the time supplied 60 per cent of fish for the domestic market.
- A memorandum of understanding was signed with the Australian Tuna Boat Owners Association — the first of a number of memoranda with industry entities providing for a guarantee of revenue to the FRDC for a period of up to five years, in return for delivery of a sector-specific R&D program.

[The following year a similar memorandum was signed with the Tasmanian Salmon Growers Association and in 2001–02 the FRDC continued to develop strategic alliances with industry through signing a memorandum with the Northern Prawn Fishery and Australian Prawn Farmers Association. Eventually these have been superseded by industry partnership agreements, described on page 23.]

- At the *Aquaculture beyond 2000* conference sponsored by AFFA and FRDC, participants resolved, after recognising that more than 90 per cent of aquaculture value was derived from five species, that public investment in aquaculture R&D should focus on species that have a high potential for commercialisation. The Australian Government announced it would support an Aquaculture Action Agenda to facilitate aquaculture development.

[As a result of this Agenda, the National Aquaculture Council was formed with Australian Government seed funding.]

- The potential to use inland saline water for aquaculture was identified in a national R&D plan funded by the FRDC.

[This initiative proved to be difficult to manage on a national basis, largely because of the limited funds available. In 2007, the NSW component was included in the portfolio of the Australian Seafood Cooperative Research Centre; however, it disbanded largely because of the lack of water from the River Murray that could be assigned to the project.]

- Following a comprehensive review of people development within the industry the FRDC, in conjunction with ASIC, sponsored the inaugural *Seafood Directions*

---

<sup>20</sup> Led by Dr Rick Fletcher.

<sup>21</sup> Led by Dr Ian Knuckey.

conference to encourage the seafood industry to become more strategic and proactive in shaping its future.

[The FRDC has continued to sponsor the conference biennially, alternating with *Australasian Aquaculture* conferences.]

- Based on improved understanding of the importance of sea mounts to the deep-sea environment, industry and fisheries managers agreed to protect a proportion of the Tasmanian sea mounts as a marine protected area.  
[This project was the start of the significant role that FRDC-funded research played in the development of marine protected areas. A further example is on page 23.]
- The FRDC collaborated with the National Land and Water Resources Audit; Australian Geological Survey Organisation; CSIRO; Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management; the University of Queensland; Environment Australia; and state and territory agencies to audit the health status of 970 of Australia's estuaries. The audit concluded that there was more to be gained initially in investing in the protection of healthy estuaries rather than the restoration of damaged estuaries. Much momentum was lost in this wide-ranging project when the Coastal CRC was disestablished.
- Dr Garth Newman reviewed the FRAB system and reported that the system “has materially improved the strategic directions of fisheries research [and] the focus of research funding”. He noted the change from a fisheries biology and assessment perspective to one meeting the wider information needs of resource managers and industry, and the involvement of stakeholders in research planning. The FRDC implemented the changes recommended by the review.
- The Institute of Public Administration Australia awarded the FRDC a High Commendation in its 1998–99 Annual Report Awards, commenting that a particularly strong point was the coverage of corporate governance. This was to be the first of a series of national reporting awards by the Institute and the Australasian Reporting Awards.

The seafood industry's GVP was \$1.91 billion.

## 2000–01: Industry response to ESD

An Environmental Management Systems (EMS) initiative between the FRDC and industry placed an EMS facilitator in each state to help the industry to implement environmental management systems and address the national fisheries ESD framework. A decision support system (the “Green Chooser”, developed by Seafood Services Australia and OceanWatch Australia Ltd) provided a template for sector-specific EMS documentation. The aim of the initiative was to help commercial fishers to manage their fisheries towards sustainability — principally through improving environmental outcomes but with consideration of economic and social factors. Consequently, many fisheries put in place EMS as a result of the support of Seafood Services Australia and/or OceanWatch Australia.

Other significant activities were as follows:

- Board appointments were new directors Ian Cartwright and David Newton, and re-appointed directors Dr Russell Reichelt (Chairman), Simon Bennison, Dr Diana Day,

Bill Sawynok and Sandy Wood-Meredith. Dr Derek Staples continued as Government Director.<sup>22</sup>

- In appointing the new FRDC Board, the Parliamentary Secretary varied the term of the appointments in order to have directors appointed before the annual FRDC evaluation phase starts, thus giving new appointees adequate time for familiarisation.
- The Women's Industry Network Seafood Community was initiated to empower women to take a greater role in seafood industry development.
- The Cooperative Research Centre for Sustainable Aquaculture of Finfish was established, with the FRDC a major participant, to add significant value to the FRDC's subprograms for Southern Bluefin Tuna and Atlantic Salmon. The CRC attracted \$16.5 million of investment by the Australian Government and more than treble that amount from other CRC participants.
- AFFA appointed the FRDC to project-manage the aquatic animal health components of the Australian Government's initiative, 'Building a national approach to animal and plant health', with a budget of \$3.1 million over four years, to be invested in accordance with AFFA's strategic plan for aquatic animal health, Aquaplan.  
[Subsequently, the FRDC instigated a Aquatic Animal Health Subprogram.<sup>23</sup>]
- The FRDC co-funded an Aboriginal fishing strategy in Western Australia to incorporate subsistence fishing practices in a framework of sustainable use of fish and fish habitat, and to increase Aboriginal people's involvement in commercial fishing, charter operations and fisheries management.
- The Corporation participated in a review of Commonwealth fisheries policy.
- In May 2001 the Parliamentary Secretary approved a national R&D levy for the prawn farming sector. This levy process — new for the FRDC but commonplace in all other R&D corporations — has resulted from the prawn farming sector's realisation of the benefits of funding and managing R&D within the aegis of the FRDC.
- The FRDC commenced negotiations with state governments to have a component of recreational licence revenue provided to the FRDC for investment in R&D related to the recreational sector. The FRDC funded a workshop of recreational fishing representatives and fostered the subsequent development of a recreational sector R&D plan.
- The first pilot course of what was to become the Australian Seafood Leadership Program was conducted.  
[The FRDC subsequently funded the course annually.]

The seafood industry's GVP was \$2.10 billion.

## 2001–02: Major initiative for industry development

Despite the industry's many success stories, market and institutional failure in the seafood supply chain continued to impede the industry's ability to identify and capitalise on many of its opportunities. Increasingly sophisticated global markets require prompt, efficient access to the best knowledge, processes and technology if the Australian seafood industry is to be globally competitive. Seafood Services Australia, until now a series of joint-venture R&D

---

<sup>22</sup> Succeeded in 2002 by Glenn Hurry.

<sup>23</sup> Led by Dr Eva-Maria Bernoth and subsequently Dr Mark Crane.

projects, had sufficiently demonstrated its potential to deal with those challenges for the FRDC and ASIC to incorporate it as a company limited by guarantee.

[ASIC ceased to be a company member of SSA when it closed down in 2006. The FRDC withdrew in 2007, acting on legal advice. Members as at mid-2009 were the National Aquaculture Council Inc., Seafood Experience Australia Ltd and the Sydney Fish Market Pty Ltd.]

### ***Seafood Services Australia Ltd***

The company was established with a mission “to enhance the profitability, international competitiveness, sustainability and resilience of the Australian seafood industry”.

SSA activity areas are:

- cost-efficient production and processing
- environmental management
- trade and market access
- capitalising on seafood health benefits (“Seafood for Life”)
- seafood incident response planning
- standards development and implementation
- certification and branding
- networks, alliances and information.

These activity areas are achieved through many relationships with industry associations and other industry entities; agencies of the federal, state and territory governments; international entities; research providers and other service providers.

Other significant activities were as follows:

- A new Chairman, Denis Byrne, was appointed.
- The FRDC celebrated its tenth anniversary during the year. During a celebratory dinner, FRDC achievements were acknowledged by many industry leaders. Inaugural Chairman Bill Widerberg recalled that the fishing industry remained unattracted to the idea of contributing financially to the Corporation: “The problem was that research had been used against industry — to take away access or quota — or for researchers to look into their areas of special interest. ... It was the inaugural board’s aim to assist industry to find solutions, and remove barriers to progress.” Russell Reichelt, recently retired FRDC chairman, commented that statutory authorities such as the FRDC are often confronted with the need to satisfy government and industry stakeholders in ways that may conflict, even to the point of having legal consequences. So far, the FRDC has managed these tensions well and to the satisfaction of all stakeholders. FRDC chairman Denis Byrne emphasised that the message from the largest investor in fisheries R&D — the Australian Government — was that R&D corporations must increasingly focus on delivering good outcomes to the wider community, not just immediate stakeholders, and that communication of research results to all potential end-users is essential. Noted Sydney restaurateur Peter Doyle said “The seafood industry owes the directors and staff of the FRDC a vote of thanks for your tremendous efforts. Congratulations!”
- The Board determined the activities in which the FRDC would not invest, consistent with the Corporation’s legislative and policy underpinnings.

***Activities in which the FRDC will not invest***

- routine stock assessment or other routine management activities
- fisheries re-stocking
- exploratory fishing
- direct marketing of fish and fish products
- direct promotion of the fishing industry
- environmental or quality certification of fisheries or enterprises
- training when other funding sources are more appropriate
- capital, unless related directly to the marginal costs of undertaking R&D
- venture capital.

- As a result of the FRDC working with industry, Australian Seafood Industries Ltd was incorporated to commercialise the results of selective breeding of Pacific oysters.  
[This was the culmination of years of FRDC investment in the genetic improvement of Pacific oysters. In a similar vein, the FRDC later worked with the NSW oyster sector to form the Select Oyster Co Ltd to commercialise the Sydney Rock Oysters breeding program.]
- In pursuing its R&D plan, the FRDC worked with the Aboriginal and Torres Strait Islander Commission to develop a cost-effective consultative framework to develop to the stage when an indigenous body could be appointed by the Minister to join with ASIC and Recfish Australia as a representative organisation. In parallel, the FRDC wrote to each FRAB requesting the appointment of a suitably qualified Aboriginal or Torres Strait Islander person on each FRAB, as was the case on the New South Wales FRAB. In a similar vein, in July 2001 the Minister for Agriculture, Fisheries and Forestry, Warren Truss, wrote to all RDCs seeking support for the Government's advance towards indigenous reconciliation. In particular, the Minister encouraged the RDCs to ensure their programs were responsive to the needs of Aboriginal and Torres Strait Islander people and that they took into account how the corporations' activities might affect them.  
[Despite the FRDC's ongoing efforts, progress has been slow.]
- The PIERD Act was amended to change the way in which the AGVP was calculated, unknown to the FRDC.  
[The consequence of DAFF's delay in implementing the change until 2007–08 is mentioned on page 25.]

The seafood industry's GVP was \$2.29 billion.

### **2002–03: Increased focus on R&D outcomes**

In an address to the chairs of rural R&D corporations, Senator Judith Troeth, Parliamentary Secretary, stated that “Many research organisations measure performance on the basis of the number of patents, or level of commercialisation, as an indicator of performance. However, demonstrating that research is actually being adopted by ... rural end users is fundamental to the rural R&D corporation model.” She added that the R&D corporations had to provide hard evidence of success and the value delivered to the nation through the funding partnership between government and industry. To this end, the FRDC asked the Australian Fisheries Management Forum, comprising directors of Australia's fisheries

management agencies, to assist it in quantifying R&D outcomes — that is, what happens when the results of R&D are implemented — of FRDC's investment in projects related to fisheries management. Such involvement of fisheries managers is significant, because they are the end-users of the 60 per cent of the FRDC's R&D budget that is invested through the Natural Resources Sustainability Program.

Until 2002, the FRDC had expressed its R&D investment priorities in a very broad way to allow researchers and end-users of R&D to respond more freely than they would be able to do if the priorities were highly prescriptive. However, the Board decided that if it were to achieve significant, measurable outcomes from its investment, a higher degree of prescription was needed. As part of its own activities in line with the Australian Government's increased focus on outcomes, the Board held a workshop with the FRABs and other stakeholders to identify more explicit R&D priorities within the FRDC's program structure. The priorities took particular account of key elements of the nine challenges concerning the fishing industry and fisheries natural resources identified in the R&D plan, and issues identified by the Australian Fisheries Management Forum.

#### *Priorities for FRDC investment*

- Develop alternative fisheries management structures and methods that:
  - provide for ecosystems-based fisheries management;
  - are based on the precautionary principle<sup>24</sup> and appropriate risk management strategies;
  - provide for maximisation of economic and social returns from fisheries through robust resource allocation methods;
  - provide for effective management of recreational fishing;
  - recognise the varying levels of need for government involvement in fisheries management (i.e., as reflected by large self-managed fisheries, full-cost-recovered fisheries, small fisheries, data-rich fisheries and data-poor fisheries);
  - recognise varying levels of property rights; and
  - are cost-effective.
- Develop ways of increasing the quality and numbers of new industry leaders to accept increased responsibility for fisheries management and industry development.
- Assess Australia's potential to address its likely 80,000-tonne seafood deficit in 2020 through high-volume, low-value aquaculture and improved use of wild-catch resources.

For some years, state governments had queried why they had a role in collecting industry contributions to be passed to the FRDC for fisheries R&D, in contrast with other industries, which were sustained by a Commonwealth R&D levy that did not involve state governments. The FRDC therefore obtained legal advice, which was that there is no

---

<sup>24</sup> Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and an assessment of the risk-weighted consequences of various options.

obligation on the Commonwealth to match industry payments that are made directly to the FRDC, rather than through a state or territory, and that in order for an obligation to be imposed on the Commonwealth to rectify this anomaly, an amendment would need to be made to the PIERD Act regulation.

[The lack of a PIERD Act regulation amendment has required the collection mechanism to continue and to remain a point of contention between the FRDC and some states.]

Other significant activities were as follows:

- Australia's first national research priorities were announced by the Prime Minister in December 2002, dealing with an environmentally sustainable Australia; promoting and maintaining good health; frontier technologies for building and transforming Australian industries; and safeguarding Australia. Subsequently, Senator Troeth, the Parliamentary Secretary, issued updated Australian Government priorities for rural R&D in the light of the new national research priorities. The FRDC responded quickly to both sets of new priorities, incorporating them into the Corporation's reporting processes.
- As a result of the FRDC working with potential industry shareholders, Australian Seafood Co-products Pty Ltd was incorporated to commercially utilise the many thousands of tonnes of fish waste thrown away each year by the processing and retail sectors of Australia's seafood industry. # *Awaiting update from Ian Knuckey.*
- The National Strategy for the Survival of Released Line Caught Fish examined the mortality rate of fish caught on lines and released by Australia's four million recreational fishers and commercial fishers.<sup>25</sup> This project employed the reverse of the usual science-directed approaches. First, surveys conducted by the Roy Morgan polling company determined which sources of information recreational fishers most trusted and how amenable they were to change. The information gained was then used to focus the science on "the art of the possible" in influencing the fishers to modify their practices.
- The FRDC collaborated with the Kondinin Group, Primary Industries and Resources South Australia and the fishing industry to develop a high-quality educational book, *The Story of Seafood in Australia*, for children of primary school age. A comprehensive teacher's resource kit applied the material across all subject areas, including mathematics. The project won one of *The Australian Awards for Excellence in Educational Publishing*.

The seafood industry's GVP was \$2.43 billion.

## 2003–04: Full financial support from industry

For the first time, industry contributions to the FRDC exceeded the maximum level that are matchable by the Australian Government. Consequently, the main incentive for the industry to contribute more to the FRDC softened. Further, with the lowering of the AGVP caused by lower export revenues, both the Australian Government's and the industry's contributions to the FRDC (where tied to the AGVP) were projected to decline, during the following two years at least. The following table shows the trend over 10 years.

---

<sup>25</sup> Led by Bill Sawynok.

Table 1: Industry contributions to FRDC as a percentage of matchable Australian Government dollars

	97- 98	98- 99	99- 00	00- 01	01- 02	02- 03	03- 04	04- 05	05- 06	06- 07	07- 08
(Actual) →	%	%	%	%	%	%	%	%	%	%	%
Commonwealth	86	88	90	90	100	101	153	168	117	120	195
New South Wales	70	78	63	76	88	81	100	117	106	122	134
Northern Territory	25	31	29	33	38	43	105	89	105	197	476
Queensland	51	86	65	81	92	100	106	94	99	100	94
South Australia	80	88	83	69	76	81	110	111	165	183	145
Tasmania	11	51	48	70	101	67	82	100	135	109	105
Victoria	100	95	98	100	87	83	101	94	96	131	108
Western Australia	49	60	58	55	51	80	81	102	136	116	89
<b>Total</b>	<b>59</b>	<b>72</b>	<b>68</b>	<b>71</b>	<b>77</b>	<b>84</b>	<b>109</b>	<b>114</b>	<b>128</b>	<b>129</b>	<b>130</b>

Other significant activities were as follows:

- Board appointments were new directors John Harrison, Professor Tor Hundloe, Dr Nick Rayns and Stuart Richey, and re-appointed directors Simon Bennison and Ian Cartwright. Denis Byrne continued as Chairman and Glenn Hurry as Government Director.
- Two surveys — spanning five years, more than 100 projects and more than 300 end-users — conducted as a PhD project by Alex Wells, a former FRDC staff member, showed that “the vast majority of end users considered the FRDC’s R&D projects to be valuable in terms of results, to be of high priority and to be meaningful for the fishing industry and/or the community”. A majority also reported that objectives were achieved and results were adopted. At the same time, they identified areas where improvements may be warranted, such as in communication between end-users and researchers, and in participation by industry.
- The FRDC recognised that the seafood industry, unlike other primary industries, has little capacity (through a marketing authority or otherwise) for generic promotion. The higher value of the Australian dollar, the outbreak of Severe Acute Respiratory Syndrome and the strengthening of competition in overseas markets had increased the need for the seafood industry to do more product promotion at the industry sector level — as distinct from enterprise level. A number of sectors shared this view and looked at ways to fund promotion. In response, the FRDC took the first steps towards gaining the legislative capacity to receive and manage sector levies for such promotion activities, much as it did for the sea-caught prawn sector under the former *Prawn Export Promotion Act*. The Corporation received strong support for the initiative from industry, which then awaited a Government response.
- Elements of the FRDC annual report were singled out as examples of good practice in a review by the Australian National Audit Office and the Department of Finance and Administration, and were extensively featured in the resulting book, *Better practice in annual performance reporting*.

The seafood industry’s GVP was \$2.39 billion.

## 2004–05: Hand-over at the helm

Peter Dundas-Smith, Executive Director of the FRDC since its establishment, retired. His successor was Dr Patrick Hone, previously Programs Manager. Reflecting the increasing focus on developing people in the industry and those who support it, and with a reference to the strong personal theme of Peter’s tenure, the Board instigated the Peter Dundas-Smith Leadership Scholarship. It provided personal mentoring and \$10,000 towards “an activity that will improve [winners’] ability to contribute as leaders in their chosen field”.

The FRDC’s fourth R&D plan was approved by the Parliamentary Secretary to the Minister for Agriculture, Fisheries and Forestry on 27 June 2005.

The R&D plan initiated further enhancements to the FRDC’s program structure. The following table shows the changes over time.

Table 2: Evolution of the R&D program structure in successive R&D plans

1993 to 1995	1996 to 2000	2001 to 2005	2006 to 2010
Natural Fish Resources	Resource Sustainability	Natural Resource Sustainability	Natural Resource Sustainability
Knowledge of fisheries resources. Fisheries resource maintenance and improvement. Management of fisheries Fisheries habitat – the ecosystem.	Resources status. Fisheries management Improvement.	Fish biology. Interactions between fish and their ecosystems. Effects of fishing activities on fish and their ecosystems. Effects of non-fishing activities, pests and pollution on fish and their ecosystems. Health of fish and their ecosystems. Rehabilitation and enhancement of fisheries and their ecosystems Legislative, institutional, compliance and policy arrangement and their impacts. Access to fisheries resources. Stock assessment. Fisheries and Ecosystems.	<i>Challenge 1:</i> Natural resources sustainability. <i>Challenge 2:</i> Resource access and resource allocation.

1993 to 1995	1996 to 2000	2001 to 2005	2006 to 2010
Aquaculture	Ecosystem Protection	Industry Development	Industry Development
Growth and survival. General biology and genetics. Management and the environment.	Ecosystems status. Ecosystems maintenance and improvement. Ecosystems management improvement.	Economic and social values of the industry and its impacts. Fishing technology. Legislative, institutional, compliance and policy arrangements and their impacts. Market development. Health and safety associated with fishing activities. Quality, food safety and consumer health. Value-adding.	<i>Challenge 3:</i> Response to demand; profitability.
Harvesting	Industry Development	Human Capital Development	People Development
Production handling and preservation. Marine environment. Processing.	Aquaculture development. Health and safety. Information delivery. Market development. People development. Quality. Technology. Value adding.	Leadership development. Vocational development. Consumer education. Community education. Community involvement.	<i>Challenge 4:</i> People development. <i>Challenge 5:</i> Community and consumer support.
Marketing		Management and Accountability	
Customer needs analysis. Competitor analysis. Industry analysis.		Fisheries R&D leadership. Strategic investment. Effective, efficient management. Communication and extension of results.	

Other significant activities in 2004–05 were as follows:

- The FRDC’s first stakeholder survey was conducted. It revealed that the Corporation had a very high level of recognition by the industry and was well regarded. Areas for increased investment were identified. Responses supported a view that the best partnerships for future investment were with industry councils. The survey also revealed that R&D News, the FRDC’s magazine, needed a revamp: many people thought there was too much focus on researchers and that more content should focus

on the interests of industry people. The magazine adopted a new focus in February 2006, before being significantly re-branded as FISH in June 2007.

[The FRDC now commissions a stakeholder survey every two years.]

- The FRDC, in conjunction with the National Aquaculture Council and the Tasmanian Aquaculture Council, sponsored the inaugural *Australasian Aquaculture* conference.

[The FRDC has continued to sponsor the conference biennially, alternating with *Seafood Directions* conferences, providing the NAC with a much-needed income stream.]

- Reviews were conducted on the People Development Program; monitoring and evaluation; data systems; and the funding framework.

The seafood industry's GVP was \$2.29 billion.

## 2005–06: Chefs and consumers engaged

In a closer focus on consumers, the FRDC determined to educate many of the next generation of opinion leaders in the food sector. It did so by engaging with chefs, who are uniquely positioned. Their advice on the best way to prepare and eat seafood, especially through the print media and television food programs, is hugely influential with consumers. As end-users of large volumes of seafood, chefs can help producers to understand trends in the marketplace, including changes in consumer tastes, the need for quality and consistency, and appropriate ways in which seafood should be sold. Chefs' views about the seafood industry were also taken into account, since they related to the important parts of the supply chain outside of fisheries sustainability and seafood production.

Other significant activities were as follows:

- Following a wide review of Australian Government statutory authorities' corporate governance by Mr John Uhrig, the Government announced that R&D corporations would remain in place under the CAC Act, with their own boards. The Government ratified the rural R&D corporation model as the preferred mode for engaging in government–industry partnerships. The PIERD Act would be amended to discontinue the position of government director<sup>26</sup> and expand the range of desired expertise for selection of directors to include government policy processes and administration. The review clearly identified that the FRDC Board's role was to establish strategy, manage risk and opportunity (entrepreneurial), and monitor and respond to performance from its R&D investment.

[Subsequently the FRDC prepared a Statement of Intent required by the Government, incorporated it into the 2007–08 Annual Operation Plan and started to integrate it into its reporting framework. It also increased communication with the Minister and Department of Agriculture, Fisheries and Forestry through monthly reporting. The Parliamentary Secretary, Sussan Ley, also suggested that RDCs improve their level of collaboration, implement a quantitative impact assessment and reporting framework between them, and improve their level of investment in people development.]

- The Productivity Commission issued a report, *Public Support for Science and Innovation*. The report made no RDC-specific recommendation but commented on what it saw as best-practice science investment. It reinforced the collective need of the RDCs to measure the benefits of the Government's investment. Further, its

---

<sup>26</sup> The reasons were that appointment of government directors was inconsistent with a skills-based approach and that discontinuance would remove potential conflicts of interests in responsibilities to the department and the minister and responsibilities to the board and the R&D corporation.

commentary on spill-over benefits shifted the emphasis of public good funding to include measures of community benefit. In recent years public good funding has focused more on direct industry or commercial benefits. The Commission acknowledged that government funding could be seen as industry subsidy and that taxing powers could be considered as being used to give private benefit. It concluded that the Australian Government needed to focus more on public good research.

- A new FRDC funding framework was announced, with five key areas:
  1. an annual competitive open round that focuses on the public good
  2. a tactical research fund that invests \$1.75 million on small projects (less than \$75,000; 18 months maximum duration) through four (now three) rounds a year
  3. national strategic investment (in which the Board initiates partnerships to fill nationally applicable R&D gaps that it has identified in the interests of public good)
  4. increased partnership with large industry sectors (such as Southern Bluefin Tuna, Southern Rocklobster and Atlantic Salmon) and the Seafood CRC through industry partnership agreements, replacing MOUs
  5. a further increased focus on people development, reflected in allocation of 10% of the FRDC R&D budget to people development.

[The funding framework was rolled out in 2006–07 and funding under it started in 2007–08.]

- A review and assessment of the impacts of the proposed broad areas of interest for Marine Park Area (MPA) development in the South East Region was concluded. Professor Colin Buxton and an expert team examined 14 proposed MPAs in a way that could be substantiated by science. The Australian Government accepted a majority of the team's recommendations. In a win–win outcome for the industry and the environment, the final agreed MPAs provided a marginally improved set of conservation and biodiversity outcomes compared with those originally proposed. The impact on the commercial wild-catch sector and its infrastructure and associated communities will be far less than what may have been the case under the original proposals. The project brought a benefit:cost ratio of 959:1 for its \$37,500 cost.

The seafood industry's GVP was \$2.16 billion.

## 2006–07: Cooperative Research Centre established

Cooperative research centres relating to the seafood industry have existed alongside the FRDC since 1993 and co-invested significant Australian Government funds into many FRDC-managed projects. The need for a cooperative research centre stemmed from recognition that the Aquafin CRC was due to wind up in 2008–09: without a follow-on CRC significant increased demand would be put on FRDC funding. Previous CRCs had focused on aquaculture development, so the challenge was to find a theme for a new CRC that would meet the Australian Government's criteria and not appear to be "more of the same".

Many of the major sectors of the seafood industry, both wild-catch and aquaculture, had benefited from the millions of dollars that the FRDC and previous CRCs had invested in ensuring the sustainable development of their production, and were now shifting their R&D priorities further along their supply chains. Consequently, at an initial workshop of industry and research leaders, it was decided that any new CRC should be built around the R&D needs of the "big end of town" as this would afford the CRC most opportunity to realise the significant economic outcome required of the CRC Program criteria.

Spurred by the urgent need for a national approach to closing major gaps in the seafood industry value chain, during 2005 and 2006 the FRDC and key industry entities had developed a case for investment by the Australian Government's Cooperative Research Centres program. In December 2006, the Australian Government approved the Australian Seafood Cooperative Research Centre with an investment of \$37 million, making it the second-largest of all Australian CRCs to date. In the first half of 2007 the Seafood CRC Company Ltd was formed; the CRC board, under the chairmanship of Peter Dundas-Smith, was elected by participants; and associated governance arrangements were put in place.<sup>27</sup> The FRDC's investment of \$24 million over seven years was the largest in the CRC. Total Australian Government and industry investment was \$140 million.

### *The Australian Seafood Cooperative Research Centre*

The CRC's planned outcomes are:

- Substantial increase in the production and profitability of selected wild-harvest and aquaculture species.
- Increased demand and access to premium markets for Australian seafood; fulfilment of consumer demands for safe, high-quality, nutritious seafood products; and increased profitability throughout the value chain.

The scope of the CRC's research (both pre-harvest and post-harvest activity) spans the entire value chain from production to consumer. The economic benefits of the CRC are estimated to add \$445 million to gross domestic product in Year 5 and more than \$520 million in Year 10.

Other significant activities were as follows:

- Board appointments were new directors Dr Ray Johnson, Dr Paul McShane, Frank Prokop, Richard A. Stevens and Richard N. Stevens, and re-appointed director Stuart Richey. Denis Byrne continued as Chairman and Glenn Hurry as Government Director.
- ASIC ceased trading because of lack of financial support from the state industry councils. This had wide ramifications, particularly for the FRDC because ASIC was — together with Recfish Australia — a representative organisation under the PIERD Act, and because it was a company member of Seafood Services Australia Ltd.
- The National Aquaculture Council and Commonwealth Fisheries Association were declared representative organisations under the PIERD Act.
- In the absence of an Australian Government response for the FRDC to manage a levy for seafood promotion, Seafood Experience Australia Ltd was incorporated by some industry leaders. The FRDC has supported the company in its endeavour to have seafood promotion legislation and an associated levy enacted.

The seafood industry's GVP was \$2.14 billion.

## **2007–08: People development ramped up**

For some years, the Board had been disappointed by the relatively low numbers of applications for funding under the People Development (previously Human Capital

---

<sup>27</sup> The Seafood CRC's agreement with the Australian Government took effect on 1 July 2007.

development) Program. They were not adequate, either in number or focus, to meet the challenges identified in the R&D plan. In 2006, they totalled less than 5% of R&D expenditure. The Board therefore commissioned a review of the People Development Program to assess how far it met the current needs of industry and how it could be re-oriented to meet future needs. The review found that although the FRDC had demonstrated a long-standing commitment to investing in people development, its investment had lacked a strong strategic focus and had mainly been confined to sponsoring leadership development programs and research scholarships.

In response to the review's recommendations, in May 2007 the FRDC recruited a manager to implement recommendations of the review through a more focused program. An advisory group was appointed to guide the initial activities.

Other significant activities were as follows:

- Peter Neville was appointed as Chairman.
- A seafood trade and marketing access forum was established in conjunction with Seafood Services Australia and the Seafood CRC to provide a high-level venue for ensuring that the priorities identified by the seafood industry (e.g., tariff, phytosanitary and health factors) were encompassed by Australian Government officials during Free Trade Agreement negotiations and similar activities.
- The FRDC launched *Co-management: Managing Australia's fisheries through partnership and delegation*, a report of the Corporation's national working group<sup>28</sup> on fisheries co-management. Since fisheries managers cannot manage wild fish — only the behaviour of fishers and, to a severely limited extent, some aspects of the ecosystems on which they depend — it is known that far closer collaboration is needed for "total ecosystem" management of fisheries. Genuine interaction and partnerships are at the heart of co-management, but practical ways of achieving it have proved exasperatingly difficult. This practical "How to" guide provided a flexible framework to be applied at various levels of co-management. It has been widely hailed by industry and fisheries managers.
- The FRDC commenced R&D focused on the needs of the recreational fishing sector under the guidance of a new working group.
- The FRDC joined in a new R&D Council to instigate high-level reports to the Minister for Agriculture, Fisheries and Forestry concerning, for example, national rural RD&E strategy and priorities and assessment of current delivery mechanisms.
- DAFF and FRDC agreed to a process for repayment of the debt, \$1.9 million, accrued by the Department's delay in implementing the new AGVP formula authorised by the 2001–02 PIERD Act amendment.
- Following a Board review of its functions, the Board issued its first corporate plan to guide its own activities. The aim was to make the Corporation more effective as a successful business delivering outcomes to its stakeholders. It included seven corporate strategies:
  1. Demonstrate the rate of return on R&D investment.
  2. Evaluate options for alternative business models and implement the preferred model.

---

28 Led by Peter Neville.

3. Conduct a business efficiency review.
  4. Build and maintain effective industry and government partnerships.
  5. Develop an effective communication plan.
  6. Establish a national investment allocation framework for public-good R&D.
  7. Develop mechanisms to deliver better adoption of fisheries R&D results.
- Changes were introduced to reduce the time spent by the board evaluating R&D projects and devolving more of that function to experts in industry and government. More emphasis was to be placed on thematic development of R&D.

The seafood industry's GVP was \$2.18 billion.

### 2008–09: World breakthrough in innovation

The huge progress made by Australian fisheries research since the 1990s was exemplified by a world scientific coup: the raising of juvenile Southern Bluefin Tuna (SBT) in captivity.

Since 1992, SBT caught off the South Australian coast had been fattened for about 12 months in sea cages for the Japanese sashimi market, now worth about \$250 million a year. Clean Seas Tuna Ltd selected some of those fish as broodstock and transferred them to a purpose-built onshore facility. Their spawning in spectacular fashion was an exciting development, because spawning is notoriously difficult to induce in this species: it results not from biological inevitability but from environmental cues during migration from the Great Australian Bight to spawning grounds in the Java Sea. These cues of the sea migration route were mimicked in a tank in which variables such as water quality, light, temperature and feed were assiduously controlled. The breakthrough holds huge potential for Australian aquaculture to help to materially fill the growing gap between world demand for premium seafood and its supply.

Elsewhere, the seafood industry experienced extreme highs and lows during the year. High energy costs and exchange rates made export conditions very difficult, and although energy costs and exchange rates declined in the global financial crisis, for many exporter fisheries the crisis slashed demand and price.

Activity in the recreational sector appeared to have grown during the financial crisis. However, information was anecdotal; lack of regular data on the performance of recreational fisheries continues to affect investment decisions. The indigenous sector, whose performance is even harder to quantify, saw customary rights recognised through the Northern Territory's "Blue Mud Bay" decision and changes to rights in the Torres Strait fisheries.

Other significant activities were as follows:

- Research, development and extension (RD&E) activities in the wild-catch and aquaculture sectors continued to expand in scope, complexity and application, with demand for FRDC investment being extremely high. The industry has a high desire and commitment to RD&E, recognising that it is essential for ongoing access and development of the nation's fisheries resources.
- The high commitment was reflected in the commercial sector's cash contributions to the FRDC increasing to 169% of the maximum that is matchable by the Australian Government. This was an exceptional development.

- The FRDC implemented a formal RD&E Investment Evaluation Framework that included:
  - an agreed national plan
  - key performance indicators and targets for measuring success
  - an investment framework that ensures investment against priorities where research can contribute to a significant improvement
  - total portfolio evaluation based on RDC evaluation methodology
  - ongoing review by the Board of planning and investment framework based on performance against KPIs.

The RD&E framework recognises that to improve the uptake of innovation by industry, basic and strategic research (R) can be provided from a distance, but with adaptive development (D) being regional and extension (E) being local.

- As the Seafood CRC increased its pace after its first full year, the FRDC significantly increased its investment aimed at increasing productivity and profitability. As the CRC's major investor, the Corporation has been pleased at the outcomes that are becoming evident.
- A complete, three-year overhaul of the FRDC's program management software, FishBase, culminating in a new system called OmniFish and FishNet, was completed. The new system, which provides a comprehensive total life-cycle management of FRDC's investment, has been designed for future web integration — an option that was not readily available when FishBase was developed. The goal is to have total electronic file management with open access architecture to provide research providers with integrated access to their own project details. The system improves monitoring of research performance and contributed to the number of completed final reports rising from 79 in 2007–08 to 126.
- In conjunction with the National aquaculture Council the FRDC, at the August 2008 *Australasian Aquaculture* conference, proposed an annual target for aquaculture production of 100,000 tonnes by 2015. Production, currently about 56,000 tonnes, is expected to increase particularly through Atlantic Salmon, Barramundi, Yellowtail Kingfish, Oysters and Abalone.
- To coordinate national investment and encourage adoption, the FRDC worked with the industry, DAFF, fisheries managers and the Department of Climate Change to develop a national climate change program, following several reports on the likely effects of climate change on marine and freshwater environments. The Corporation committed a minimum of \$2.7 million over the next three to four years.
- Following a decision to unify the processes for evaluating cost-benefits across the entire RDC portfolio, the FRDC started to evaluate 18 clusters of R&D projects conducted between 2003–04 and 2007–08 (aggregated from 34 projects in which the Corporation had invested \$96 million) that would produce statistically valid results.
- Land and Water Australia, the R&D corporation that received funding from the Australian Government for public good, was abolished.

The seafood industry's GVP was \$2.20 billion.